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Food and Agriculture Security: What Dairy Producers Need to Know

by Heidi Hamlen, DVM, MS, DACVPM and Amanda Price, BS

Recent events in the United States have focused attention on food and agriculture security, including the threat of intentional introduction of disease into livestock populations and the potential for contamination of the food supply. In addition, approximately 70% of the biologic agents identified by law enforcement as being potential biological threats to people are zoonotic agents, or agents that can be spread from animals to people. Therefore, animals may show signs of these diseases before people do, so unexplained illness in animals can act as an early warning for public health and law enforcement agencies. Rapid reporting, diagnosis, and investigation of suspicious diseases could save animal and/or human lives by quickly mobilizing a response and confining the spread of disease.

It is imperative that dairy producers report any suspicious signs or unusual disease in their animals to their veterinarian. Suspicious events include:

- higher-than-usual sickness or death in your animals,
- unusual ticks or maggots,
- blistering around an animal's mouth, nose, teats, or skin near the hooves, and
- staggering, falling, or other central nervous system signs.

Pathways of introduction of disease agents into livestock populations may occur through contaminated feed and water, inhalation, or contact with contaminated people or equipment. Producers should also be concerned that products from their animals, such as milk and meat, may be intentionally contaminated during transport and processing, and could pose a risk to food safety.

See **SECURITY** on Page 3

February Milk Production

Milk production in California for February 2002 totaled 2.6 billion pounds, up 3.7 percent from February 2001. USDA's estimate for U.S. milk production for February 2002 in the 20 major dairy states is 11.4 billion pounds, up 2.8 percent from February 2001. Production per cow in the 20 major states averaged 1,474 pounds for February, which is 43 pounds above February 2001. ☀

Quota Transfer Summary

For March 2002, 6 dairy producers transferred 3,058 pounds of solids-not-fat (SNF) quota. The quota sales averaged \$458 per pound of SNF (without cows), with an average ratio of 2.27. ☀

Minimum Class Prices

Statewide average hundredweight prices

Class	February	March	April
1	\$13.82	\$13.41	\$13.40
2	\$12.26	\$12.26	\$11.83
3	\$12.10	\$12.10	\$11.67
4a	\$11.04	\$11.00	—
4b	\$10.40	\$10.20	—

Federal Order and California Minimum Class 1 Prices

Average Hundredweight Prices

Regions	March	April
Phoenix, Arizona	\$13.97	\$13.82
Southern California	\$13.54	\$13.54
Portland, Oregon	\$13.52	\$13.37
Northern California	\$13.27	\$13.26

California Alfalfa: March

Northern California: March showed new sales of all qualities of alfalfa to be slow; producers are looking at new crop of hay coming on and buyers seem hesitant to buy at previous price levels. Most dairies seem to have an adequate supply of hay on hand. Retail and Stable hay were steady with moderate demand and adequate supplies. Rain showers were sporadic throughout the northern areas. Northern area producers are hoping to get started on new crop hay within the next month.

Southern California: March showed Supreme alfalfa activity moderate with some movement to the Chino dairies and most sales going north. Retail and Stable hay was steady with moderate demand and adequate supplies. Cool weather and gusty winds caused a slowdown in growth for the new crop alfalfa. Forage mix hay showed some weakness but supplies are more than adequate. Hay in the high desert areas still coming out of barns with prices holding steady. ☀

Shown below are alfalfa hay sales, deliveries and Supreme quality prices per ton, delivered to dairies, as reported by the USDA Market News Service, Moses Lake, WA.

Alfalfa Hay Sales and Delivery February/March 2002

	February 2002	March 2002
Tons Sold ¹	40,800	73,436
Tons Delivered ²	31,374	32,050

¹ For current or future delivery.

² Contracted or current sales.

California Supreme Hay Prices

Statewide average prices per ton

Area	March 2002 Prices			
	3/1	3/8	3/15	3/22
Petaluma	\$175	\$160-175	\$175-180	\$175
North Valley ¹	\$170	—	\$170-180	—
South Valley ²	\$170-178	\$165-179	\$170-180	\$172-178
Chino Valley	\$150-158	\$150-160	\$152-162	\$155-160

¹ North Valley is Escalon, Modesto and Turlock areas.

² South Valley is Tulare, Visalia and Hanford areas.

For current pricing information and reports on the FOB market, you may subscribe to the California Alfalfa Hay Weekly Summary by calling (509) 765-3611. Weekly reports are available on the Internet at:

<http://www.ams.usda.gov/marketnews.htm>



California Department of Food & Agriculture

William (Bill) Lyons Jr., Secretary

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The Food and Drug Administration has issued guidelines for the food and agriculture industry to minimize the threat of an intentional introduction. These guidelines include:

Milk producers:

- Safeguard animal feed and water from intentional contamination
- Safeguard bulk tank milk prior to transport
- Conduct mock recalls and responses to terrorist events.

Milk processors:

- Restrict access to food handling and storage areas.
- Issue photo identification badges to workers with individual control numbers and color codes to indicate access to authorized areas.
- Watch for unusual behavior by employees, such as working after the end of their shift.

Both:

- Perform criminal background checks on workers.
- Restrict personal items allowed into an establishment.
- Secure water sources and test water sources regularly for their safety.
- Inspect facilities routinely and randomly.

Two biological threats that can affect both people and cattle are anthrax and botulism. The natural courses of the diseases are discussed below, although an intentional introduction may cause the disease to develop differently. However, if we understand how these diseases might appear in cattle under natural conditions, it will enhance our ability to recognize the diseases in the event of an intentional introduction.

Anthrax

Anthrax is the disease caused by the bacteria *Bacillus anthracis* and may affect all warm-blooded animals, including people. Cattle and other ruminants are most susceptible to anthrax and are most commonly affected. *Bacillus anthracis* forms spores that allow it to survive for several years in soil. Anthrax is endemic in many areas in California. Most cases of anthrax in animals are seen in grazing cattle in late summer, when the weather is warm and dry, the grass is short, and

the soil is dusty; animals may inhale spores when grazing close to the soil, which usually causes death within one to two hours of inhalation. Anthrax is not easily spread by direct contact between animals, but the spores can be inhaled, ingested, or enter a wound. Animals are usually infected by ingestion of the soil-borne anthrax spores, and signs include fever, diarrhea, throat swelling, rapid, deep respirations, depression, listlessness, abortion, and depressed milk production with blood- or yellow-tinged milk. Animals may also develop a localized infection when spores enter through breaks in the skin. Many animal producers work with their veterinarian to vaccinate their animals in areas where anthrax is endemic.

Signs in people include fever, fatigue, cough and chest discomfort progressing to respiratory distress, and shock. As in animals, anthrax is not considered contagious by person-to-person transmission, and treatment must be given early in the course of the disease to be maximally effective.

Botulism

Botulism is a potentially fatal, progressive, paralytic disease that affects many species of animals and is caused by a toxin produced by *Clostridium botulinum*. Spores of the bacteria are widespread, but disease is rare. The spores must grow in an anaerobic environment (no oxygen) to produce the toxin; this environment may be found in decaying plant and animal materials or wounds. The toxin blocks the nervous system and causes progressive weakness and paralysis. The disease is often fatal unless the owner notices the early signs of the disease: difficulty swallowing or chewing, laying down more than usual, drooling, inability to urinate, stilted gait, lack of rumen motility, and difficulty breathing. One of the earliest signs in cattle is the inability to retract the tongue, so the animal's tongue hangs out of its mouth. Recovery from the disease may take weeks to months, but the more likely outcome in animals is death due to respiratory paralysis.

In people, the clinical signs include drooping eyelids, blurred vision, dry mouth and throat, difficulty swallowing, and progressing to generalized weakness and respiratory paralysis. People are given antitoxin and respiratory support by a ventilator.

Conclusion:

The **California Department of Food and Agriculture (CDFA) and United States Department of Agriculture (USDA)** perform many activities in order to protect animals and people from diseases such as anthrax and botulism. **Animal health officials** advise on biosecurity precautions and investigate reports of unusual sickness or death in livestock and poultry and work with private veterinarians to determine the cause. Animal Health Branch staff also work with USDA at seaports and airports to ensure that international garbage that comes in on boats or airplanes is disposed of properly.

The **California Animal Health and Food Safety (CAHFS) Laboratory System** is a network of diagnostic laboratories that are able to diagnose infectious diseases and toxicoses in animals. CAHFS reports all suspicious diseases to the CDFA Animal Health Branch, and animal health officials work with the private veterinarian to investigate the problem. If the disease is zoonotic (can be spread from animals to people), CDFA will notify the **California Department of Health Services (DHS)**. DHS protects people from zoonotic diseases, investigates unusual or suspicious foodborne diseases, and safeguards public health in general. DHS works closely with **county public health offices** and the **National Centers for Disease Control and Prevention**.

CDFA also has many programs that, along with USDA, the **Food and Drug Administration (FDA)**, and DHS, help protect our food supply. These programs license and inspect meat and poultry processing facilities and milk producers and processors; test fruits, vegetables, dairy products, animal feed, fertilizers, and livestock drugs; and provide educational outreach to producers, processors, and consumers.

Despite our best efforts to prevent the introduction of disease and pests, the risk from natural and intentional introduction is *always present*. Government programs depend on animal producers to watch for and report potential signs of diseases and pests in livestock. You know your animals better than anyone else and are the front-line defense for spotting and reporting possible signs of disease or pests. In California, please call local law enforcement to report suspicious or criminal activity and your local CDFA Animal Health Branch District Office to report unusual conditions in animals.

CDFA Animal Health Branch

Headquarters	(916) 654-1447
Redding District	(530) 225-2140
Modesto District	209) 491-9350
Tulare District	(559) 685-3500
Ontario District	(909) 947-4462

WEB RESOURCES

CDFA Animal Health Branch

<http://www.cdfa.ca.gov/ahfss/ah/index.htm>

DHS Veterinary Public Health Section

<http://www.dhs.ca.gov/dcdc/html/publicat.htm>

Emergency Preparedness and Response

CDFA Animal Diseases and Issues of Current Interest

http://www.cdfa.ca.gov/ahfss/ah/ad_news.htm

DHS, Bioterrorism Updates

<http://www.dhs.ca.gov/bioterrorism/>

Centers for Disease Control and Prevention,
Bioterrorism Preparedness and Response Program

<http://www.bt.cdc.gov/>

State of California, Office of Emergency
Preparedness

<http://www.oes.ca.gov>

USDA APHIS Veterinary Services Emergency
Programs

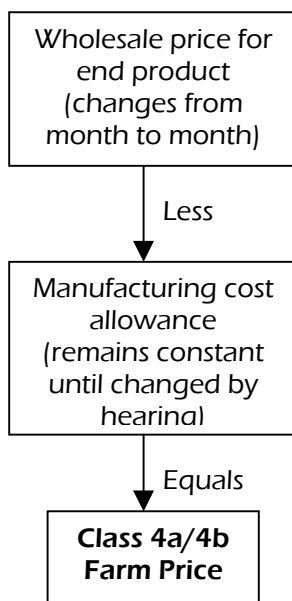
<http://www.aphis.usda.gov/vs/ep/>

What Is Causing the Class 4 Prices to Decrease?

Since last fall, Class 4a and 4b prices have declined significantly. From September 2001 to February 2002, Class 4b prices (for milk used to make cheese other than cottage cheese) have decreased by \$5.15 per hundredweight while Class 4a prices (milk used to make butter and dried milk products) have decreased by \$4.31 per hundredweight. While the large decreases over a short time frame are remarkable, the changes in prices can be explained easily.

Both Class 4a and 4b prices are calculated each month by using formulas adopted through the public hearing process by CDFA. These formulas, referred to as "end-product pricing" formulas essentially use wholesale prices received by processors, less an allowance to cover the cost converting raw milk into the end product. These two elements of the formula have changed recently, and combined, explain all of the price decreases realized. The Class 4a and 4b pricing formulas have other elements, such as yield factors, but they have not changed recently and do not assist in explaining the price decreases.

In the simplest format, the pricing formulas can be expressed as follows:



Which Wholesale Prices?

The pricing formulas use prices for butter and Cheddar cheese as traded on the Chicago Mercantile Exchange (CME). Each month, prices for butter and Cheddar cheese are averaged and

used as the measure of wholesale prices. For nonfat dry milk, the Department calculates an average price based on actual sales by California nonfat dry milk processors. These wholesale prices increase and decrease based upon the relationship between milk production and the demand for dairy products. In short, demand and supply play key roles in price determination. If milk production increases in a given period while the demand for dairy products remains relatively flat, then wholesale prices will drop until the market clears, i.e., all product has been sold. Likewise, if milk production decreases because of bad weather or poor feed quality and demand remains relatively flat then wholesale prices will increase.

Just as milk production fluctuates from month to month, market demand for dairy products ebbs and flows depending on the time of year (for example, holidays and when school is in session), the performance of the U.S. economy and global market conditions for dairy products. Recent history has shown that fairly small changes in the relationship between milk produced and the demand for dairy products can have significant impacts on market prices for dairy products.

How Are Manufacturing Cost Allowances Changed?

The Department conducts periodic studies of butter, nonfat dry milk and Cheddar cheese plants in the state to determine the cost of processing raw milk into wholesale finished product. These cost studies are summarized and made available prior to public hearings in which proposed changes to manufacturing cost allowances are considered. Interested parties present testimony at public hearings regarding the accuracy, timeliness and appropriateness of the summarized data in determining the proper level of cost allowances.

The Department sets manufacturing cost allowances as a result of testimony and evidence presented at public hearings. Once set, the cost allowances remain constant until changed through another hearing process.

On November 29, 2001, the Department held a hearing on the Class 4a and 4b pricing formulas based on a petition to increase the manufacturing cost allowances. The increase was requested because of the extraordinary energy costs incurred by processing plants for both electricity and natural

gas. As a result of the hearing, manufacturing cost allowances were increased for butter, powder and cheese by 0.5¢, 2.1¢, and 0.7¢ per pound, respectively.

So, What is Causing Class 4 Prices to Decrease?

The increases in manufacturing cost allowances made effective January 1, 2002 had small effects on the price decreases, but the major factor causing the decrease was a drop in the wholesale market prices for butter and Cheddar cheese. Nonfat dry milk prices received by California manufacturers have also decreased dramatically due to a decrease in the federal support purchase price of powder in May 2001.

The table below shows the prices for butter, powder and Cheddar cheese in September 2001 compared to February 2002 (prices are per pound of finished product:

Wholesale Price Comparison ^{1,2}
Butter, Powder, and Cheddar Cheese
September 2001 and February 2002

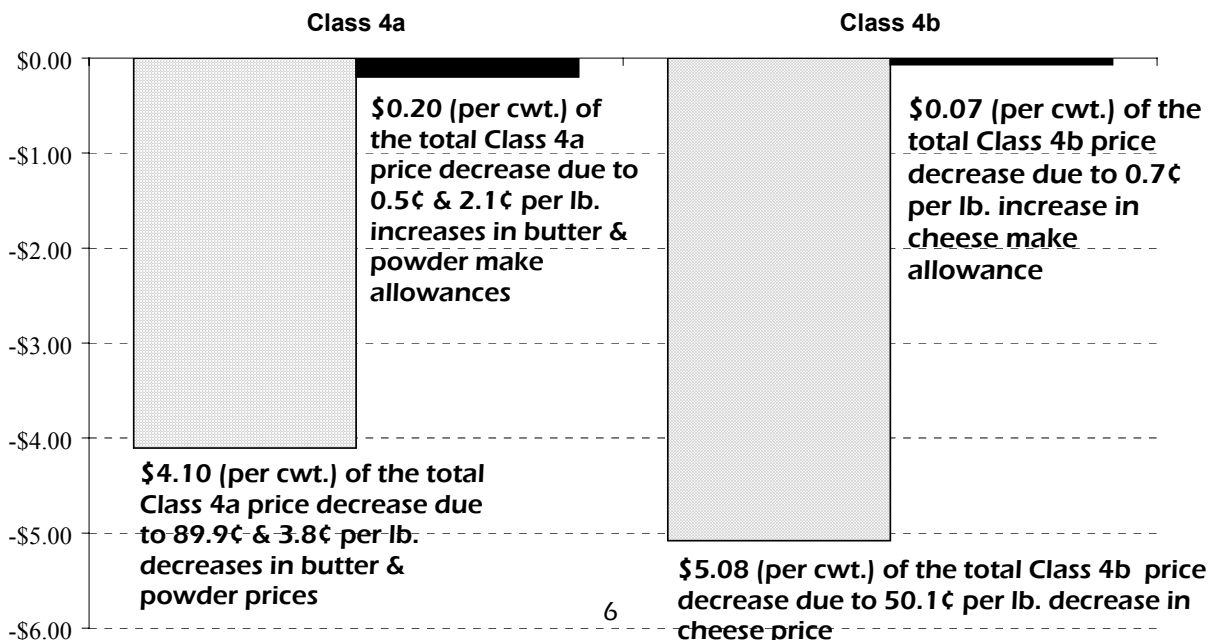
Product	September 2001 Prices	February 2002 Prices
Butter	\$2.1532	\$1.2544
Cheddar Cheese	\$1.7261	\$1.2250
Nonfat Dry Milk (Powder)	\$0.9412	\$0.9031

¹ CME prices per pound for butter and 40 lb. block Cheddar cheese

² Weighted average price per pound received by California manufacturers of powder

As shown in the following graph, when the commodity prices are substituted into the Class 4 pricing formulas and are converted to hundredweight prices, the drop in commodity prices accounts for almost the entire drop in Class 4a and 4b prices from September 2001 to February 2002.

DECREASES IN CLASS 4A AND 4B PRICES
Impact of Commodity Price Decreases and Make Allowance Increases to the
Class 4a and 4b Price Decreases from September 2001 to February 2002



Methane Converter Projects

MODESTO - Three methane converter projects with a total value of more than \$1.5 million have been approved under an innovative State grant program designed to help the state's dairy producers turn manure into electricity.

The \$10 million grant program, funded by the California Energy Commission, has a goal of installing anaerobic digesters and producing electricity by the summer of 2002. A digester is an airtight container that uses bacteria to break down manure. As part of that process, methane gas is produced and used to power electrical generators.

The program offers aid by two methods: A cost share of up to 50% of a dairy producer's capital costs in constructing the digester, or reimbursement of up to 50% of the capital costs through electricity generated. The grant program is part of Senate Bill 5x, signed by Gov. Davis last Spring to ensure the immediate implementation of energy efficient programs to reduce energy consumption and assist in reducing the costs associated with energy demand.

The grant program is overseen by an advisory board comprised of representatives from the California dairy industry; U.S. Environmental Protection Agency's AgSTAR Program; California Energy Commission; Sustainable Conservation; University of California; California State Water Resources Control Board; and California Department of Food and Agriculture. ☀

Somatic Cell Counts on the Rise

USDA Economist Stephen Ott of Fort Collins, Colorado, summarized somatic cell count data from 7,000 herds across the country for 60 months and found that somatic cell counts are getting worse, not better. Among the 7,000 producers studied, the last five years have shown that things have not gotten any better in lowering somatic cell counts. Mr. Ott calculates that if all U.S. herds lowered their cell counts to 200,000, they would gain \$1.00 per cwt., figuring 90% of that coming from increased milk production and 10% from higher premiums. Overall, for the entire U.S. dairy industry, that equates to \$1 billion. In addition, the National Mastitis Council has established a task force to develop strategies to lower the U.S. somatic cell count limit from 750,000 to the world standard of 400,000. ☀

Getting to Know Us . . .

In response to reader request, the Dairy Review will highlight a Branch employee each month - in an effort to help you connect faces with voices, and help you get to know us better!

This month we feature Karen Dapper, Research Analyst II for the Dairy Marketing Branch Statistics Unit. Karen maintains the Dairy Statistics Database and produces the Dairy Information Bulletin, Milk Pricing Newsletter, California Dairy Review, and yearly Statistics Annual.

**Karen
Dapper**



I grew up in Sacramento and worked for the State while attending California State University Sacramento with majors in math and business. My vocational life has followed many diverse, yet interesting paths, both in private industry and State service. Following college, I had the opportunity to serve an apprenticeship as a graphic artist and then purchase a printing company in Sacramento. After owning and operating the printing business for 4 years, I moved to the coast, purchased a commercial fishing trawler and fished for salmon and tuna off the California and Oregon coasts. After three years of fishing I sold the trawler, and had the chance to fulfill a lifelong dream of raising quarterhorses and "working with animals" in Washington state.

While working there as a graphic artist and raising horses on 12 acres, there seemed to be a need for replacement heifers so I bought calves from the local dairies and started raising replacements. This led to another opportunity: the chance to lease and operate a 100-cow holstein dairy in Washington, and then later I moved the herd to Tillamook Oregon. Working and operating the dairy was a great experience in this dairy-oriented community, not to mention being fortunate enough to be around animals and work outdoors. I came back to State service in 1997 and joined the staff at the Dairy Marketing Branch 18 months ago. This position allows me to blend my dairy and graphics experience in my work, but best of all are the people I work with, both here at CDFA and within the industry.

All the other jobs and opportunities aside, the most important and rewarding has been that of being a single parent. My daughter Sarah attends high school and is involved with volleyball, soccer, and swimming, and is an aspiring guitar player. Sarah and I are also a surrogate family for retired Guide Dogs and we currently have two career-change guide dogs as family pets. ☀

Hundredweight Pool Prices

Month	Quota	Overbase
September '00	\$13.31	\$11.61
October	\$12.29	\$10.59
November	\$12.69	\$10.99
December	\$12.98	\$11.28
January '01	\$12.73	\$11.03
February	\$13.04	\$11.34
March	\$13.88	\$12.18
April	\$14.65	\$12.95
May	\$15.70	\$14.00
June	\$16.46	\$14.76
July	\$16.35	\$14.65
August	\$16.70	\$15.00
September	\$16.95	\$15.25
October	\$14.71	\$13.01
November	\$13.67	\$11.97
December	\$12.93	\$11.23
January '02	\$13.18	\$11.48
February	\$12.53	\$10.83

2001 Milk Mailbox Prices in Dollars per Hundredweight

	June	July	August	Sept.	October	November	December
California ¹	\$15.23	\$15.13	\$15.54	\$15.95	\$14.06	\$12.96	\$12.33
USDA ²	\$15.95	\$15.92	\$16.32	\$16.86	\$15.52	-----	

¹ California mailbox price calculated by CDFA.

² All federal milk market order weighted average, as calculated by USDA.

